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ABERRANT PANCREATIC TISSUE

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The existence of aberrant or heterotopic deposits of pancreatic tissue in the gastro-intestinal tract, where they are encountered by the radiologist, is of sufficient rarity to warrant mention. When they do occur they are usually misinterpreted. The lesions are of clinical importance and should be removed from the list of anatomical curiosities.

The condition has been defined as the presence of pancreatic tissue, outside its usual location and without anatomical or vascular continuity with the pancreas proper. Historically, it may have been first described in 1727 and it was certainly a well recognized post-operative and post-mortem entity by the latter half of the nineteenth century. Under the old term adenomyoma, it was reported with increasing frequency and detail and at the present time slightly over 500 cases are recorded.

Several theories are currently held regarding the embryological fault which leads to the development of these heterotopic masses. The one that seems to be most widely endorsed claims that they are the result of the failure of the primitive ventral anlage to undergo normal atrophy. Whatever the underlying defect may be, it is known that heterotopic pancreatic tissue can occur anywhere in the stomach, duodenum, small bowel, mesentery or omentum and even in the liver and spleen. It has been noted that there is a peculiar association between these pancreatic deposits and diverticula, both duodenal and Meckel's, and it has even been suggested that, in some cases at least, duodenal diverticula develop because of the presence of such deposits in the duodenal wall. However, regardless of the developmental mechanism involved, it is a fact that approximately 70% of all the heterotopic masses occur close to the normal pancreatic bed. i.e., in the gastric antrum, the duodenum and the proximal jejunùm. Fortunately, this portion of the intestinal tract is most amenable to careful radiological study.

Histologically, the lesions are composed of true pancreatic tissue, often including one or more ducts. They are found in all age groups and usually occur singly. They are most frequently sub-mucosal in location although inter-muscular deposits have been not infrequently recorded. They are exceptionally rare on the serous surface of the gut but are not uncommon in the mesentery. Grossly, they usually appear as small, discrete nodular tumours, which may undergo cystic change if a duct becomes blocked. Occasionally they are more diffusely infiltrating in character and in some cases, notably in the new-born but also in the adult pyloric antrum, they can form a constricting ring leading to intestinal obstruction, which may be partial or complete. Wherever and however they occur, in the intestinal tract, they are covered internally by normal regional mucous membrane unless pathological changes have supervened.

The great majority of these aberrant deposits, even including many which are radiologically demonstrable, produce no symptoms, are clinically unimportant, and require no surgical treatment. When symptoms do develop, except in the case of obstruction in the new-born, they are late in appearing, being most frequently encountered in the fourth to the sixth decades. The lesions become of clinical and surgical importance through one or more of several mechanisms. Since they are composed of normal pancreatic tissue, they are subject to all of the pathological processes which inflict the parent gland, notably pancreatitis and cyst formation, and it has been suggested that, because of the occasional presence of undifferentiated elements, they are particularly prone to malignant change. This, however, is still open to some question. In some cases secondary regional disturbances develop such as fatty necrosis, haemorrhage or ulceration, probably as the result of the action of their secretions. Alternatively, they may, by virtue of their size and position, cause obstruction or intussusception and this is particularly true of those lesions near the pyloric canal which are liable to become extruded through the canal into the duodenum.

Although it has been suggested that intense epigastric pain, in the absence of other positive findings, is a solid ground for suspicion, there is no characteristic clinical picture associated with these heterotopic masses. Rather, the patient harbouring an aberrant pancreatic deposit, which has become clinically manifest, will usually present the signs and symptoms of one of the common gastro-intestinal disorders, commonly peptic ulcer, gall-bladder disease or intermittent obstruction. Very rarely, the patient will exhibit hyperinsulinism when the pancreas itself is normal and in

these cases the search for the offending offspring becomes of paramount importance.

Because of the usual sub-mucosal location and solitary nodular character of these deposits, when they are visualized radiologically they are commonly interpreted as benign polyps and their significance is assessed on the basis of their size and position and the likelihood of their producing obstruction or intussusception. Not infrequently, in the case of gastric lesions, and almost invariably in duodenal deposits, the radiological diagnosis is that of ulcer and the true nature of the condition only becomes known if the patient undergoes surgical excision of the involved area. Less commonly the lesion will be radiologically indistinguishable from an infiltrating or intra-luminal neoplasm. In this particular group, which probably comprises 20% of all the gastric deposits, the radiologist can help to prevent unnecessarily drastic surgery by being ever aware of the less serious possibility, especially if there is any discrepancy between the apparent malignant nature of the lesion and the patient's clinical appraisal.

The following case report illustrates some of the features of this type of pancreatic deposit.

The patient, a 35-year old married woman, consulted her physician because of an indefinite sense of discomfort and intermittent epigastric pain of approximately six months duration. There had been occasional nausea but no vomiting. Initially, there had been no relationship between the symptoms and meals but latterly there had been aggravation of the pain after eating, to the point where the patient had voluntarily restricted her diet. She had observed a slight weight loss but not more than could have been accounted for by the reduced diet. There had been no change in bowel habits and the patient admitted no other abdominal complaints.

General physical examination was quite unrevealing and examination of the abdomen disclosed only a moderate tenderness and some guarding in the epigastrium. There was no rebound tenderness and no masses could be palpated. The usual laboratory examinations were not contributory and stool examinations were negative for occult blood.

A gastro-intestinal series was undertaken and a lesion was discovered on the posterior wall of the stomach, close to the lesser curvature, at a point about three inches distal to the cardia. This had the appearance of a plaque-like area measuring 2.5 x 1.3 centimetres, containing what appeared to be a small ulcer crater in the central portion of the convex inner surface. There was no demonstrable infiltration or rigidity of the gastric wall adjoining the lesion and the stomach and duodenum were otherwise normal in appearance and behaviour. It was felt that this was an ulcerating tumour, either a carcinoma or a leiomyosarcoma, and it was so reported. (Fig. 1).

The patient was prepared for surgery and, at operation, a specimen was removed for quick section. Upon receiving the report that this showed normal pancreatic tissue only, a local excision was performed, removing a minimal amount of stomach beyond the palpable confines of the tumour. The patient made an uneventful recovery and over two years later remains free of any disability or recurrence of symptoms.

Pathological studies of the surgical specimen confirmed the earlier diagnosis of pancreatic tissue and revealed evidence of a healed, shallow ulcer. There was no evidence of pancreatitis or other pathological change in the specimen and the cause of the ulcer remains unknown unless it was related to mechanical trauma consequent upon the presence of the tumour mass or to secretory activity.

To summarize, there are two observations that might be made:

1. Radiologically demonstrable heterotopic pancreatic deposits may be of real clinical importance and are usually readily amenable to surgical removal.
2. These deposits may be indistinguishable from neoplasms except by histological examination and this should always be resorted to before the drastic surgical procedures demanded by malignant growths are carried out.

ANEVRYSME DE L'ARTERE RENALE

présentation d'un cas

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Histoire de cas:

Madame J. V., âgée de 53 ans, mère de 13 enfants est admise à l'Hôpital Notre-Dame, le 25 septembre 1953, avec un diagnostic de cholécyste calculeuse aiguë.

Elle souffre alors d'une douleur violente, intermittente, survenant toutes les 5 minutes, à l'hypochondre droit. Cette douleur s'irradie au sein droit et à la loge rénale droite mais également à la fosse iliaque gauche.

La malade accuse en plus des nausées sans vomissements. Elle n'a jamais présenté de crises semblables auparavant.

Avant cette admission, elle fut hospitalisée à deux reprises dans un autre hôpital de Montréal.

Lors de sa première hospitalisation du 28 novembre au 24 décembre 1952, elle subit une discoidectomie à L-5-S-1. On lui aurait alors dit qu'elle avait un calcul vésiculaire, mais elle refusa l'opération qu'on lui aurait proposé.

A son deuxième séjour dans ce même hôpital, du 6 juillet au 12 août 1953, on la traita pour hypertension artérielle.

Les rapports d'examens radiologiques faits dans cet hôpital se lisent comme suit: 3 décembre 1952

"Radio simple: Présence d'un gros calcul dans la vésicule biliaire.

Endoveineuse: Cavités rénales droites normales.
Les cavités du rein gauche ne se sont pas complètement injectées".

4 décembre 1952.

"Cholécystographie: La vésicule biliaire se montre bien opacifiée. Elle est globuleuse. Il n'existe pas d'image suggestive de calcul dans ce viscère, mais on note la présence d'une tache de forme ovalaire à contours denses et bien délimités mais à centre plus clair.

Cette image est située en bordure de la 3e vertèbre lombaire sur la droite. Il peut s'agir d'un appendice épiploique calcifié, d'un petit anévrysme et même d'un calcul cholédocien".

En juin de cette présente année, elle aurait eu une paralysie du 6e nerf crânien gauche, avec ptose de la paupière survenue brusquement avec photophobie.

En novembre 1952, elle aurait fait un ictus avec hémiparésie droite et perte de conscience d'une durée de 15 jours.

Examen physique:

L'abdomen est très douloureux à la palpation du point de Mac Burney. La loge rénale droite est également douloureuse.

Aucune masse n'est palpable et il n'y a pas de défense musculaire. L'on constate une paralysie du sixième nerf gauche avec ptose de la paupière.

L'urée sanguine se chiffre à 51 — la glycémie à 101. La formule sanguine montre une légère anémie normochrome.

Le test de Kline est négatif et la pression artérielle est de 186 sur 106.

Il y a absence de porphobilinogène dans les urines.

Le 28 septembre, la patiente est dirigée au Service de Radiologie pour cholécystographie avec la réquisition suivante: "Patiente hospitalisée dans un autre hôpital il y a 1½ mois pour baisse de la vue avec hypertension artérielle, chez laquelle on a découvert une lithiase vésiculaire. Entrée ici à l'hôpital en crise aiguë de cholécystite lithiasique". Cette cholécystographie démontre une vésicule bien opacifiée sans calcul. Cependant, il existe une image calcifiée arrondie, à centre clair, ayant l'apparence d'une coquille d'oeuf brisée,

Figure 1

Cavités rénales droites injectées. La vésicule biliaire est également opacifiée et visible dans le coin supérieur gauche du film.
L'anévrysme calcifié se projette partiellement sur le bassinet.

qui se projette sur le tiers moyen de l'ombre rénale droite.

Cette calcification représente soit un calcul du bassinet, soit un anévrysme de l'artère rénale droite. Une pyélographie est suggérée.

Cette pyélographie intra-veineuse pratiquée le 2 octobre montre des reins et uretères normaux.

L'image calcifiée est aperçue en dehors du bassinet, très près du hile du rein droit et moins mobile que le rein lui-même. Un diagnostic d'anévrysme de l'artère rénale ou hépatique est alors proposé. (Fig. 1)

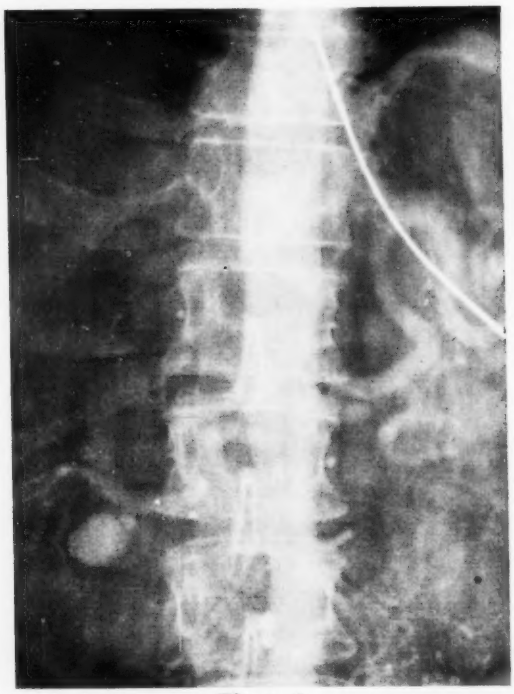

Figure 2

Aortographie démontrant l'opacification du sac anévrysmal dépendant de l'artère rénale droite.

Le 9 octobre une aortographie, faite à l'Urokon à 70% prouve sans l'ombre d'un doute, la présence d'un anévrysme de l'artère rénale (Fig. 2).

Le 21 octobre 1953, le Docteur Paul Bourgeois pratique une néphrectomie droite et voici son protocole opératoire.

"Anesthésie générale;

Incision lombaire sur 12e côte. Résection de la 12e côte. Prolongement de l'incision vers l'ombilic.

L'ouverture de la loge rénale nous permet de trouver un rein droit bas situé, mobile, présentant des adhérences nombreuses et denses avec la graisse péri-rénale. Libération du rein au ciseau. Uretère et bassinet normaux. Le pédicule est long, constitué par une veine d'aspect normal, une artère rénale longue, facilement disséquée, qui donne à un centimètre, du hile un anévrysme dur, du volume du bout du pouce, adhérent au bord inférieur de l'artère par un large pédicule. De la partie interne de l'anévrysme se détache une artère accessoire aussi grosse que la rénale droite plus haut, qui se dirige vers le pôle inférieur. Une dissection minutieuse de l'anévrysme et du pédicule démontre qu'il est impossible de ne pas sacrifier le rein. Devant l'aspect macroscopique du rein et des lésions de néphrite, la néphrectomie classique est facilement réalisée. Drainage — 1 cigarette. Fermeture en trois plans — Soie sur la peau". — Docteur Paul Bourgeois (Fig. 3).

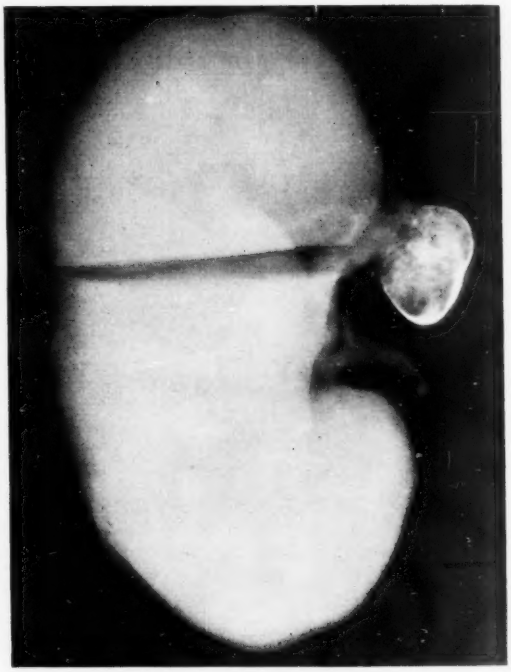

Figure 3

Radiographie de la pièce opératoire démontrant parfaitement que la calcification est située assez loin du bassinet et de l'uretère.

Voici le protocole des anatomo-pathologistes:

"Néphrectomie droite.

Macroscopie:

A 4 cms de son entrée dans le rein existe sur l'artère rénale une dilatation anévrysmale de forme ovale, mesurant 3.5 cms x 2.5 x 1 cm. qui s'est développée aux dépens de la partie inférieure de la paroi artérielle. Cette formation est très dure et calcifiée. Elle a été conservée en entier pour la macroscopie.

Microscopie:

Une très grande proportion de glomérules est transformée en boules de sclérose et d'autres sont en voie de se fibroser. Les artères montrent des parois épaissies par de l'endartérite et leur lumière est très rétrécie.

Il existe dans les tubes une substance albumineuse ainsi que des concrétions assez abondantes. Certains groupes de tubes sont hypertrophiés. Les cellules montrent de l'athrocytose. Le tissu interstitiel est infiltré ici et là par des ilôts de cellules rondes à noyaux foncés de type lymphocytaire, qui accompagnent généralement la sclérose glomérulaire. Dans le bassinet, la sous-muqueuse est le siège d'une réaction inflammatoire lymphoplasmocytaire.

Conclusion: — Anévrysme de l'artère rénale.

Sclérose glomérulaire et vasculaire avec pyélite chronique".

Docteurs Jeanne Bourgeois et Claire Gélinas-Mackay.

Les anévrysmes des artères rénales sont très rares.

Reynaldo dos Santos, dans se première publication en 1931 sur "l'Artériographie des membres inférieurs et de l'aorte abdominale"[1] ne mentionne pas un mot de cette possibilité de diagnostic.

En 1951, Abeshouse de Baltimore a rapporté deux cas dans Urologic and Cutaneous Review[2] et profita de l'occasion pour faire une revue très complète de la littérature jusqu'à ce temps. En incluant ses deux cas, il collectionna un total de 115 anévrysmes de l'artère rénale. Et pourtant ces 115 cas n'étaient pas tous de vrais anévrysmes. En effet, dans un travail magistral paru dans le Journal d'Urologie en 1932, Maurice Gérard[3] avait très bien fait la distinction entre les faux anévrysmes et les vrais anévrysmes. Il avait alors fait la revue de 49 cas de vrais anévrysmes et d'au moins 12 cas de faux anévrysmes. Ces faux anévrysmes ne représentaient en somme que des hématomes péri-rénaux par rupture vasculaire post-traumatique.

En 1951, Parke Smith et ses collaborateurs[4] présentèrent un travail à St-Louis Missouri, à une réunion de l'American Roèntgen Ray Society. Ce travail fut publié en 1952 dans l'American Journal of Roentgenology. Sur au-delà de 200 aortographies, aucun cas d'anévrysme de l'artère rénale ne fut trouvé.

En janvier 1953, David Shapiro de Louiseville Kentucky rapporta dans Radiology[5] un cas sur 17 aortographies.

En mai 1953, dans Acta Radiologica, J. R. Von Ronnen[6] de la Haye, Hollande, écrivit un article sur le diagnostic radiologique des anévrysmes calcifiés des artères splénique et rénales. Dans cet article il rapporta un cas vérifié et un autre non vérifié. Avec le nôtre, le nombre de cas publiés, dans la littérature que nous avons pu vérifiée, s'élève à 119 y compris quelques cas de faux anévrysmes tels que décrits par Gérard.

Seulement 25 cas parmi les 115 collectionnés par Abeshouse, furent diagnostiqués avant l'opération.

Ces 25 cas étaient tous calcifiés, mais 6 autres étaient calcifiés qui ne furent pas diagnostiqués.

50% des cas se trouvaient à droite et 50% à gauche.

50% des malades étaient des hommes et 50% des femmes.

Plusieurs souffraient d'hypertension parmi les 115 cas.

Un malade était âgé de 9 mois et un autre de 5 ans alors que deux malades avaient respectivement 80 et 82 ans.

La plupart des patients avaient entre 40 et 60 années d'âge. Seulement 13% de ces anévrysmes étaient dus à l'artériosclérose et la plupart des cas pouvaient être considérés comme congénitaux. Les autres causes mentionnées seraient la syphilis, la péri-artérite noueuse, la fièvre rhumatismale, la tuberculose, un traumatisme.

Le diagnostic radiologique est très facile si l'on pense à cette possibilité à la vue d'une calcification qui peut être décrite comme une coquille d'oeuf brisée où la brèche représente le pédicule ou point d'insertion de l'anévrysme.

Les anévrysmes de l'artère splénique sont beaucoup plus fréquents que les anévrysmes

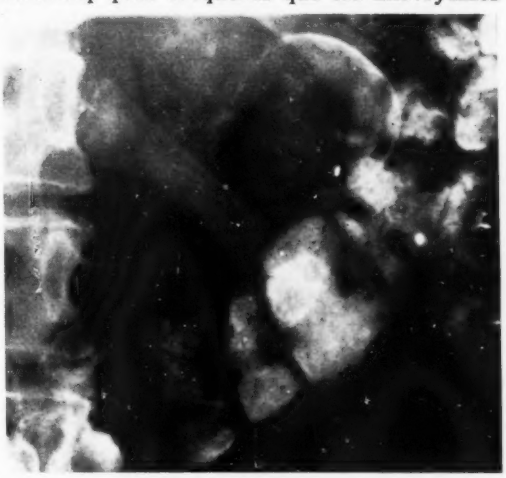

Figure 4

Anévrysme de l'artère splénique prouvé à l'opération.

A remarquer l'image en coquille d'oeuf brisée très bien démontrée.

de l'artère rénale et pourtant ils ont exactement la même apparence malgré que la majorité soient dus à l'artériosclérose. Nous avons l'impression que nous observons, en moyenne, un cas d'anévrysme de l'artère splénique par mois, dans notre service de radiologie. (Fig. 4)

Cet anneau calcifié ou cette coquille d'oeuf sera toujours située très près du hile rénal, en dehors d'une vésicule opacifiée si du côté droit. Il ne sera jamais stratifiée comme un calcul du bassinet peut l'être.

L'aortographie est la méthode de choix pour prouver qu'une telle calcification est un anévrysme ou non et l'on se rend vite compte que cet examen est relativement facile à faire et sans danger.

Les seules contre-indications sont l'hypersensibilité à l'Iode et l'urémie.

Sommes-nous certains que la douleur qu'accusait la malade était due à cette lésion. Si elle en est maintenant soulagée nous oserions dire que la disparition de la douleur est une notion pour le moins favorable à une telle conclusion.

L'on doit signaler cependant que la tension artérielle n'a pas été modifiée par la néphrectomie.

Oswald Lowsley et Edward M. Cameron dans J.A.M.A.[7] en 1943 rapportaient que "the most constant complaint is pain referred to the upper part of the abdomen or to the lumbar region".

Cette douleur a au moins comme mérite d'attirer l'attention sur le rein si on ne la reconnaît pas comme causée par l'anévrysme.

Et un peu plus loin: "Hematuria in cases of true aneurysm is the result of renal thrombi and subsequent infarction".

Et maintenant une telle lésion doit-elle nécessairement être opérée?

L'opinion varie beaucoup selon les auteurs.

Abeshouse et Lowsley semblent favoriser l'intervention car tous les malades disent-ils, qui n'ont pas été opérés (parmi les cas rapportés) sont morts de la rupture de l'anévrysme. Cependant, il faut avouer que très peu ont été diagnostiqués avant la mort ou l'opération. La mort a donc été l'occasion fréquente de la découverte.

Gérard et Von Ronnen sont cependant beaucoup plus conservateurs que les Américains.

Le pronostic de l'anévrysme calcifié serait très favorable d'après Gérard. Des anévrysmes aussi résistants auraient peu de chance de se rompre.

L'anévrysme qui se calcifie chez les sujets vieux ne se romprait pas alors que l'anévrysme non calcifié chez les jeunes se romprait facilement.

Nous ne savons tout de même pas encore si nous prendrons la chance que le prochain anévrysme que nous découvrirons ne se rompe et entraîne la mort du malade. Quel serait votre choix à vous médecins ou chirurgiens?

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PRIMARY CARCINOMA OF THE VAGINA*

by

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Primary carcinoma of the vagina is a rare disease compared with, say, cancer of the cervix. In the years 1932 to 1952 only 70 cases have been collected from the records of the Ontario Institute of Radiotherapy for reviewal in this paper. This may be compared with 1600 cases, in the same period, of cancer of the cervix uteri. This rarity means that only larger centres see many patients with this disease. Further, the fact that this organ does not readily lend itself to surgical removal and the lesions do respond to radiation, mean that the radiotherapist is faced by a challenging problem.

Symptoms: This is a disease of old age, the median age being 61 years. The most common symptom is discharge, the second most common, bleeding. The average duration of symptoms is 6.9 months, and the delay before seeking medical attention averaged 4.3 months. Delay between doctor's examination and referral for treatment was short, being only 2.6 months. Despite this short delay, disease is often advanced by the time of referral, indeed, 27 cases (40%) were found to be Stage III or IV.

Diagnosis: Diagnosis rests upon careful physical examination and biopsy. Physical examination includes the usual bimanual and speculum examination, and should almost invariably include an examination under anaesthetic to rule out primary carcinoma elsewhere with secondary in vagina. Cancer of ovary, body of uterus or cervix may all have metastases in vagina. Any biopsy report of adenocarcinoma of vagina should be regarded as a probable secondary lesion and the primary sought elsewhere.

The diagnosis rests on the biopsy report in the last analysis. All but four cases had a positive biopsy report, the four cases without biopsy being advanced cases that died of disease, hence must be included. 61 cases were squamous cell; 1 basal cell; 1 transitional cell and three adenocarcinoma.

To diagnose primary carcinoma of vagina, by international usage, it is necessary to see a cervix clear of disease. Any case where a cancer has encroached on, or destroyed cervix and extended down vaginal walls must be diagnosed as cancer of cervix, not cancer of vagina. This criterion has been followed in this series except for one patient. In this patient the consultant gynaecologist found a minimal encroachment on one side of the cervix by a lesion on vaginal wall. The vaginal lesion was so clear-cut that he felt justified in including this case among the primary vaginal cancers. Except for this case, all lesions with cervical or vault of vagina involvement have been considered carcinoma cervix and excluded from the series.

Staging: Since the type of treatment and prognosis depend to a considerable extent on the size of the lesion, it behooves the doctor to examine the lesion with care. Staging is only of value in that it passes on to others a concept of the size, and forces the examiner to delineate the size to himself accurately. The staging adopted has been a sort of modification of the old League of Nations cervix carcinoma staging, as follows:

Stage 1 — Lesion not more than 3 cm. in diameter confined to vaginal tube.

Stage 2 — Greater than 3 cm. in size; or spread to parametrium on *one* side, but not to side wall of pelvis.

Stage 3 — Spread in both parametria, or to side wall of pelvis on one or both sides.

Stage 4 — As Stage III, but bladder, bowel, supra pelvic, or distant metastases.

Stage 1 and 2 are of operable size, 3 and 4 inoperable. It may be noted that an extensive lesion of vaginal mucosa, without deeper spread will still be Stage II. These lesions are actually easier to deal with than the ones with deep spread.

Treatment: There has been a gradual evolution in the treatment of this lesion as in many other lesions treated by radiation. For many years treatment was on a more or less empirical basis. Stage 1 and 2 lesions were treated by planar implants of full strength radium needles (0.66 mgm/cm) or by intracavitary radium. Dosages were empirically expressed in terms of mgm. hours. X-ray was sometimes given either before or after radium, directed largely to the parametrium, and with an interval between X-ray and radium of four weeks.

Since 1949 the policy has been to carry radiation right through without gaps, and aiming at a specific tumour dose in a specific time as follows:

**Presented at the 17th Annual Meeting of the Canadian Association of Radiologists, Quebec City, January 13th-15th, 1954.*

Stage 1 — The treatment of choice is considered to be a single plane radium implant. This may be curved into a portion of a cylinder by the natural curve of the vagina. Radium used includes full strength 0.66 mgm/cm specific linear activity needles around the periphery, and 0.33 mgm/cm (or half strength) needles in the middle of the implant. The dosage difference between such an implant and the conventional full strength implant has been described.[1] This type of implant decreases high dose in the middle, increases dosage at the periphery, and we hope will show fewer peripheral recurrences and central high dose necroses. These needles are usually 1, 2, 1.5 and 3 mgm. in amount.

After the implant, radiographs are taken in A.P. stereo and lateral directions at right angles, with a ring of known size in the plane of the implant to give the magnification. The dosage is then checked by the Ontario Cancer Institute physicist, J. C. F. MacDonald, Ph. D.[2]

Fig. 1

Figure 1 shows such an implant with uncrossed ends.

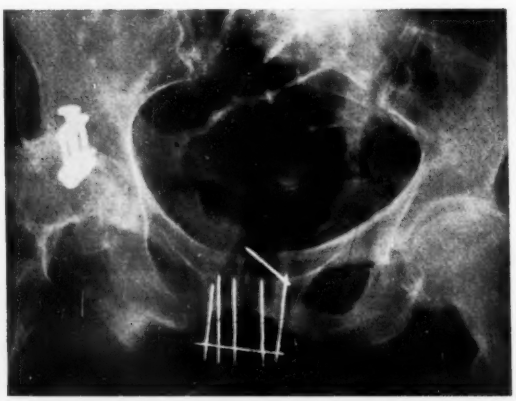

Fig. 2

Figure 2 shows a similar implant with crossed ends. It is difficult to cross the ends of these implants, and curved Cobalt needles would be an interesting possibility here.

Stage 2 and 3 — If not too advanced, a radium implant can be done as described above. If more advanced, usually needles will not be feasible, and treatment consists of central radium source, plus external X-ray. After considerable trial and error, the most convenient central radium holder was found to be a solid nylon tube, milled in sections, which could be screwed together to give a source to fit the length of the lesion. The wall thickness is 0.8 cm. to decrease the surface effect and increase depth dose, the overall diameter being 2 cm.

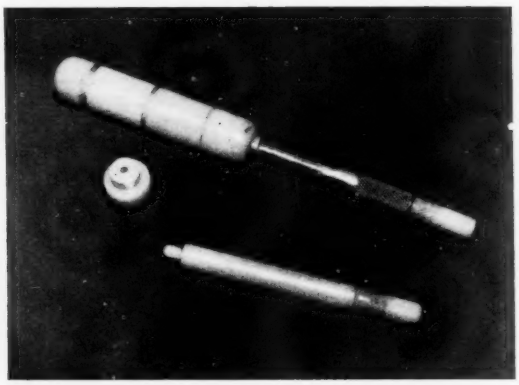

Fig. 3

The holder is pictured in Figure 3. With a three-section applicator loaded with 30-20-30 mgms. of radium, the surface dose averages 200 r/hr., the dose at 0.5 cm. deep 110 r/hr. Slightly better isodose curves would be obtained with 30-25-30 loading, but unfortunately no 5 or 25 mgm. sources are available here.

The average lesion is treated by this central vaginal applicator to a two-thirds cancer lethal dose. This is taken as 4000 r in 100 hrs. or 3000 r in 48 hrs. With X-ray externally then, an additional one-third cancer lethal dose is added. This is taken as about 2000 r in two weeks to 2500 r in 3½ weeks, depending on the portal size. The whole treatment takes about three to four weeks. 400 K.V. has been used in the past for this external radiation, the size of portal and number being adjusted to the size of lesion. With small people, 10 x 10 portals, two oblique anterior and the same posterior are satisfactory, the skin dose on each portal being of the order of 2000 - 2300 r. With these rather deep-seated lesions it is hoped that Telecobalt radiation in the future will add more adequate dosage.

RESULTS: In this small series no final conclusions can be drawn. Since the disease is rare, however, the results obtained might be of interest.

The five year survival is shown in Figure 4. All patients lost sight of, or not treated are included in the figures. 52 cases are available for five-year survival, patients of years 1932 to 1948.

PRIMARY CANCER OF THE VAGINA
FIVE YEAR SURVIVAL
1932 - 1948

Stage	Number	Alive	Died*	Survival Rate
I	7	5	2	
II	16	6	10	
III	16	3	13	
IV	7	0	7	
Not Staged	6	1	5	
Total	52	15	37	29%

**Including 1 died extraneous disease*
6 lost to follow up, included as dead

Figure 4

Of those dying of disease, the median life span is only sixteen months, so this is seen to be a fairly rapidly lethal disease. The gross five-year survival is seen to be 15 patients out of 52. In those dying of disease, only 5 died of distant metastases with the primary controlled. All the others had persistent or recurrent disease in the primary area.

The adequacy of treatment was reviewed in the light of present-day dosage. It was considered that 22 patients had adequate treatment, of which 9 are alive at five years. Adequate treatment was not delivered in 30 patients, either because of extent of disease, condition of patient or other reasons, with only 4 alive. This suggests the importance of careful and full delivery of the correct tumour dose.

Summary

1. 70 patients with carcinoma of vagina have been reviewed for the years 1932 to 1952. Of these, 52 cases are available for five-year study (1932 to 1948) and 15 are alive.

2. Methods of treating this disease in early and late cases have been discussed.

3. It appears important to deliver an adequate dose to this cancer in order to attain success in control.

REFERENCES:

1. Radium Dosage — The Manchester System, W. J. Meredith, Editor, p. 7. E. & S. Livingstone, Ltd., Edinburgh.

2. Radium Dosage — The Manchester System, W. J. Meredith, Editor, pp. 110 to 119 E. & S. Livingstone, Ltd., Edinburgh.

BOOKS RECEIVED

Books received are acknowledged in this department, and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interest of our readers and as space permits.

The Fundamentals of X-ray and Radium Physics, by Joseph Selman. The Ryerson Press, Toronto.

Bases de l'interprétation radiologique radiogéométrie, par Manoel De Abreu, Volumes 1 et 2, Masson et Cie, Paris, 1954.

Traité technique de tomographie osseuse, par Robert Herdner, Masson et Cie, Paris, 1953.

RADIOGRAPHY PRIOR TO EMERGENCY LAPAROTOMY

DR. LS. IVAN VALLEE
Hôpital Saint-Luc, Montréal

I would like to review with you the results obtained at St. Luke's Hospital, Montreal, in radiographing patients prior to an emergency laparotomy. These patients have constituted the majority of emergency cases in our hospital and do not include those due to trauma. I shall report therefore our experience of the past eight years, during which time we have tried to convince each junior and senior interne and our surgeons of the importance of giving all patients coming for an emergency laparotomy the advantage of an X-ray examination before operation. By recognition, therefore, of the value of the results and not by regulation, the physicians and surgeons concerned now send to X-ray every patient for whom an emergency laparotomy has to be considered. The X-ray procedure has become medical consultation, and not a simple laboratory technical process, and as a means of diagnosis which supplements the history and physical examination.

This consultation with the radiologist has these advantages:

(1) It is done quickly without any appreciable discomfort to the patient and without delay.

(2) There is no danger of aggravation or addition of any complication to the patient's condition.

(3) The examination is quite easy and not painful.

(4) It has the advantage of convincing the physicians, who are not radiologists, that the findings of an X-ray examination are indispensable and may mean the survival of the patient and may or may not mean the confirmation of their tentative diagnosis.

In order to do these examinations, the X-ray department has been kept open day and night, Sundays and holidays, with a resident technician always available at night because we have a special apartment in the X-ray department where the technician resides.

All technicians were trained to a standardized technique which was used for not only the so-called "surgical abdomen" but also in all cases of an abdominal emergency of unknown origin. These patients usually come from the ambulance or from the outpatient department — even before the requisition has been made out, or before the clinical history has been taken or the examination done. On occasion the surgeon is still at the patient's home, on his way to the hospital, or has not been able to see the individual patient.

What then is the standard technique used for these patients? One might say it is a "general elimination" technique for all acute abdominal cases, and consists in taking three X-ray films without contrast medium. These films include: (1) A complete 14 x 17 film of the chest with the patient lying supine on the stretcher or seated on the stretcher; (2) A single flat plate of the abdomen; (3) A film including the upper abdomen and the lower half of the chest in a vertical position. This film we regard as indispensable, and if not taken vertically, one loses something of great value, as you know, diagnostically. If, however, the patient is not able to sit on the stretcher, he is supported on his left side with the right side up, the film placed behind his back, and this position enables one to discover free air or free fluid in the peritoneal cavity, often showing the fluid levels. It is the findings from this preliminary technique that has convinced the internes, practitioners and surgeons of our hospital to do radiography prior to an emergency laparotomy, and often we have had to pursue the examination further, especially with contrast media. At first the charity and non-paying patients in the wards were sent for this type of examination, and our findings in these cases supplied the material for convincing other members of the staff meetings, clinical conferences, and interdepartmental meetings, so that now the surgeon has become the chief protagonist of this method.

It has been recognized during the past six years, without any hospital regulation having been made, that any "surgical abdomen" must have an X-ray by this technique. Similarly the acute, non-traumatic abdomen and the emergency abdomen of unknown origin receive this examination. With this co-operation of the medical staff we have been able to improve our facilities and techniques for diagnosis and to avoid some complications and errors. One of the important and interesting findings is the recognition that in adults, as well as in children, the painful acute abdominal syndrome is often the result of infection of the lung, or of cardiac lesions. One of our surgeons at the hospital during the past three years has had five cases of pneumonia and bronchopneumonia in adults referred to him by general practitioners. Three of these were

diagnosed as emergency appendicitis, and three of the five were subjects for discussion at the hospital clinical conferences. These cases convinced everybody that this means of diagnosis offered by the radiologist has resulted in the avoidance of unnecessary operations for which an infection of the lung may be the complicating factor. It will be recognized how difficult it is to show statistically that the post-anaesthetic or post-operative pulmonary complications exhibited by patients were really pre-anaesthetic and pre-operative in origin.

It is reported from some of the Norwegian and Swedish clinics that pre-operative radiographic examinations have resulted in a 30 percent improvement in the mortality rate for this type of patient, namely the emergency abdomen. One publication estimates that in intestinal obstruction the mortality rate in the surgical wards has decreased from 50% to 10% since radiography of the abdomen was instituted prior to emergency laparotomy.

Among other findings, the standardization of our X-ray technique has been a great help to the surgeon in differentiating between appendicitis and a renal or ureteral stone. To illustrate, a young interne 20 years of age, in our hospital seemed to have a clear-cut case of appendicitis but asked me to X-ray his abdomen — "because it's free anyway". To our surprise, we found two calculi, one in the right pelvis and another in the upper third of the right ureter, and an analysis of the urine showed microscopic blood. A few days later the renal stone was removed, and the patient was happy not to have had the inconvenience of two operations. So impressive was this demonstration of the value of X-rays, the young interne later began his studies in the specialty of Radiology!

Let us indicate some unusual findings not anticipated by the surgeon and which, on occasion, have made him more certain of his diagnosis. We have found enlarged spleens, enlarged kidneys; in incomplete abortions we have found portions of sticks which the patient had been loath to tell about; and even a surgical clamp which, by compression, had resulted in a bowel obstruction. Then, too, while the operation has been carried out, the radiographic examination has shown the necessity of changing the original purpose of the operation so that it was not carried out as intended.

A pneumoperitoneum is a finding that is always dramatic to the surgeon, as is hydropneumoperitoneum in cases of intraperitoneal perforation. Our findings show that it is important to remember that most of these perforations were of a gradual nature and with localized pain. This is quite different from the usual teaching. The value of radiography of the abdomen as a method of diagnosis is very evident in patients who come to the hospital under the influence of alcohol or those whose mental development is poor, or those affected by typhoid fever, tabes, or by drugs taken previously. As an average, 80% of intra-abdominal perforations were discovered by this simple X-ray technique, and in 1951 the percentage reached 90%. Our statistics for 1953 are not as yet available. During the years of 1948 to 1950, 33 patients were admitted to our hospital with abdominal perforation. Of these, 24 had X-ray films; of these, 3 were negative and 21 were positive. The age of these patients varied from 19 to 70 years of age. Going back to cases admitted between the years of 1944 to 1953, 2 cases were the result of perforation by gastric carcinoma, one of perforation by diverticulum of the bowel, 1 of perforation of the bowel due to typhoid fever, 1 of perforation of the appendix, 1 of perforation of the bowel by a bullet, 1 of sutures which did not hold, and, in the past month, 1 case of 2 perforations of the body of the stomach about two inches from one another.

In summary, we would like to call your attention to the following points:

1. The importance of convincing one's colleagues in medicine and surgery of the value of radiographs prior to emergency laparotomies.
2. Standardization of an X-ray technique with well-trained personnel is important.
3. The recognition that the pulmonary-abdominal syndrome does not apply to children only, but is present in adults.
4. The difficulty of differentiating the symptoms of an acute appendix and renal and ureteral stones.
5. The possibility of additional and sometimes surprising findings that may be given to the surgeon before operations.
6. The possibility of diagnosing abdominal perforations in 80% of the cases, and the importance of recognizing that in perforation of abdominal organs in acute abdominal conditions the symptoms are not necessarily those reported in the text books.

MEETINGS

The Fifth Inter American Congress of Radiology will take place April 24th through April 29th, 1955, at the Shoreham Hotel in Washington, D.C. Members of the Canadian Association of Radiologists are invited to present papers at the Congress. Titles of papers should be sent to the Honorary Secretary-Treasurer of the Canadian Association of Radiologists by December 31st, 1954.

The Canadian Society of Radiological Technicians' Convention will take place at the Admiral Beatty Hotel, Saint John, N.B., September 1st to 4th, 1954.

POSITIONS AVAILABLE

Position available as Assistant Radiologist to the Department of Diagnostic Radiology of the University Hospital, Saskatoon. Please address replies to: Dr. E. W. Spencer, Professor of Radiology, University Hospital, Saskatoon, Sask.

Therapeutic Radiologist wanted to take charge of Radiotherapy and Isotope Laboratory in expanding Department. Knowledge of Diagnostic Roentgenology desirable. Apply to: Dr. I. Sedlezky, Jewish General Hospital, Montreal, Que.

A vacancy exists for a certified English-speaking Radiologist to take charge full time of the X-Ray Department of a 121-bed general hospital in Quebec City. New 150-bed hospital under construction. Terms on application. Apply to: Administrator, Jeffery Hale's Hospital, Quebec City, Que.

Radiologist, Certified in Diagnostic Radiology, required by large Clinic group in Northwestern Ontario. Services to commence around October 15th. Please give full particulars regarding age, marital status, training, qualifications, experience, references, financial arrangements expected, etc. Apply to Box 11, Journal of the Canadian Association of Radiologists.

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